

University of Groningen

Job satisfaction and sickness absence

Roelen, C.A.; Koopmans, P.C.; Notenbomer, A.; Groothoff, J.W.

Published in:
Occupational Medicine-Oxford

DOI:
[10.1093/occmed/kqn113](https://doi.org/10.1093/occmed/kqn113)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2008

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Roelen, C. A., Koopmans, P. C., Notenbomer, A., & Groothoff, J. W. (2008). Job satisfaction and sickness absence: a questionnaire survey. *Occupational Medicine-Oxford*, 58(8), 567-571.
<https://doi.org/10.1093/occmed/kqn113>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Job satisfaction and sickness absence: a questionnaire survey

Corné A. M. Roelen^{1,2}, Petra C. Koopmans^{2,3}, Annette Notenbomer⁴ and Johan W. Groothoff²

Background	When dissatisfaction with work precedes sickness absence, screening for satisfaction levels might usefully detect workers at risk of sickness absence.
Aim	To investigate whether job satisfaction was associated with subsequent sickness absence days or episodes.
Methods	A sample of workers was randomly drawn from a population of employees who had an episode of absence between January and April 2003. Job satisfaction was measured using a validated single question with a Likert-type scale ranging from 1 (very dissatisfied) to 7 (very satisfied). Job satisfaction levels were linked to the number of recorded sickness absence days and episodes in 2003, distinguishing between short (1–7 days) episodes and long (>7 days) episodes.
Results	Of 898 questionnaires distributed, 518 (58%) were returned. The mean \pm standard deviation job satisfaction level was 5.1 ± 1.4 and negatively related to the number of sickness absence days. Job satisfaction was also negatively related to the number of short episodes and long episodes of absence, but these associations were not significant.
Conclusions	Job satisfaction was significantly related to total sickness absence duration. The association with the number of sickness absence episodes was weak and just below the level of statistical significance. Assessing work satisfaction levels might usefully identify those workers most likely to have the greatest sickness absence duration.
Key words	Job satisfaction; sickness absence days; sickness absence episodes.

Introduction

Many people spend a considerable part of their waking hours at work. Work provides the basic needs of economic sustenance and contributes to a sense of social identity and usefulness. The fourth European Working Conditions Survey (2006) showed that five out of six workers reported themselves satisfied or very satisfied with working conditions [1]. If work is failing to provide satisfaction, workers will feel unhappy or unfulfilled for long periods each day. It has been reported that job satisfaction levels are related to workers' health [2]. The associations were strongest for measures of mental health, while those for physical health were weaker. If job satisfaction levels

are related to workers' health, one would expect an association between job satisfaction and sickness absence. However, little is known of this relationship. The few studies that have investigated it have reported inconsistent results [3–10]. Most of these studies have concentrated on long-term sickness absence, although Marmot *et al.* [11] found low job satisfaction to be related to higher rates of 1–2 days absences among civil servants aged 35–55 years.

Sickness absence is a substantial economic burden in societies where employees receive sick leave benefits from the state or from employers. Much attention has therefore been paid to the reduction or prevention of sickness absence. We assume that dissatisfaction at work predisposes to sickness absence. If so, it may be possible to use job satisfaction levels as a screening tool to identify workers who are at higher risk of sickness absence. We therefore designed a follow-up study to investigate the associations between job satisfaction levels at baseline and the number of subsequent sickness absence days and episodes. Job satisfaction was defined as a positive emotional evaluation and attitude of workers towards their job. It can be regarded as a global concept, but

¹ArboNed Zwolle, PO Box 158, 8000 AD Zwolle, The Netherlands.

²Department of Health Sciences, University Medical Center, University of Groningen, Groningen, The Netherlands.

³ArboNed Groningen, PO Box 141, 9700 AC Groningen, The Netherlands.

⁴ArboNed Leeuwarden, PO Box 132, 8900 AC Leeuwarden, The Netherlands.

Correspondence to: Corné A. M. Roelen, ArboNed N.V., PO Box 158, 8000 AD Zwolle, The Netherlands. Tel: +31 38 4554700; fax: +31 58 4537272; e-mail: corne.roelen@arboNed.nl

can also be considered as being composed of facets of satisfaction with various aspects of a job [12]. Up to 45% of the variance in job satisfaction is accounted for by personality traits, especially neuroticism and extraversion [13,14]. The concept of job satisfaction was further considered to encompass work content (variety of skills, complexity of tasks, role ambiguity), workload (time pressure, work pace, extra work), autonomy (responsibility for work, control over job decisions), personal growth (development, training or education), promotion (career advancement, job level) financial rewards, supervision, co-workers, communication and meaningfulness of work [15]. Of these factors, workload and the autonomy to organize one's work and vary work tasks to one's own discretion were found to be the most important determinants of job satisfaction, explaining 54% of the variance in job satisfaction [16]. Therefore, these factors were controlled for in the present study addressing the research questions:

- (i) Are global job satisfaction levels at baseline associated with the number of subsequent sickness absence days?
- (ii) Are global job satisfaction levels at baseline associated with the number of subsequent short or long episodes of sickness absence?

Methods

Of a total workforce including 8177 employees working in different jobs and companies, 1908 workers had an episode of sickness absence between 1 January 2003 and 1 April 2003. The personal data of these 1908 workers were transferred by the employer to the occupational health registry on the first day of sick leave and from these we drew a random sample of 898 workers, since for reasons of cost, efficiency and available resource it was not possible to include all 1908 workers in the study. A questionnaire was sent by post to the workers included in the sample directly after they had been registered sick. We could not include workers without sickness absence episodes because the absence registry did not record their personal data. Ethical approval was sought from the Medical Ethics Committee of the University Medical Centre Groningen, who advised that ethical clearance was not required for this questionnaire survey because the results were reported on group level and could not be traced to the individual. All workers agreed to the use of their results for scientific purposes.

While many different job satisfaction instruments exist, only a few have adequate reliability and construct validity [15]. The multidimensional Job Satisfaction Survey (JSS) was one of them. Dolbier *et al.* [17] correlated the results of a single question: 'Are you satisfied with your job as a whole?' with those of the JSS in a population

of public agency employees. They estimated a minimum reliability using the formula $\check{r}_{xy} = r_{xy} / \sqrt{(r_{xx} \times r_{yy})}$ where \check{r}_{xy} is the expected correlation between the single question (x) and the results of the JSS (y), r_{xy} is the measured correlation between x and y and r_{yy} is the reliability of y [18]. When \check{r}_{xy} was set at 1.0, a reliability r_{xx} of 0.90 was found. When \check{r}_{xy} was more conservatively set at 0.90, the reliability r_{xx} was 0.73. The questionnaire used in this study assessed global job satisfaction with Dolbier's single item scored on a seven-point Likert-type scale, ranging from 1 (i.e. very dissatisfied) to 7 (i.e. very satisfied). The questionnaire also assessed physical workload and mental workload (both scored on a seven-point Likert-type scale ranging from 1 = low to 7 = high), job autonomy (defined as being able to organize one's work, range 1 = never to 7 = always) and decision authority (defined as being able to take decisions concerning one's work, range 1 = never to 7 = always).

Gender differences in satisfaction levels were investigated using the non-parametric Mann-Whitney test. The effects of age (groups: 20–29; 30–39; 40–49; 50–59 years) and education (low = primary education and vocational training; medium = senior secondary education and pre-university education; high = college and university) on job satisfaction levels were analysed with non-parametric Kruskal-Wallis tests. Non-parametric Kendall's Tau-b (τ) correlation coefficients were computed for the correlations between the independent variables.

The results of the questionnaires were associated with the number of both sickness absence days and sickness absence episodes in 2003. The first and last dates of all absences due to sickness were recorded for each worker. The calendar days between these dates were regarded as sick days irrespective of someone's contracted hours and considering partial days off as full sick days. Sickness absence was also assessed by counting the number of absence episodes in 2003, distinguishing between short episodes (1–7 days) and long episodes (>7 days) of absence.

The associations between job satisfaction levels and the number of sickness absence days were analysed using multiple linear regression (ENTER) in SPSS for Windows (version 15), controlling for age, gender, physical and mental workload, job autonomy and decision authority. Negative binomial distributions and Poisson distributions are a natural choice for modelling count data and are often used in sickness absence research. The number of short episodes of sickness absence was modelled with a zero-inflated negative binomial distribution using Transition Data Analysis version 6.4f. The number of long episodes of sickness absence was analysed using the Poisson distribution calculated with GENLOG for general log-linear analysis in SPSS for Windows (version 15). Age, gender, physical and mental workload, job autonomy and decision authority were included as covariates in both models.

Results are presented as mean \pm standard deviation (SD) and $P < 0.05$ was considered significant. Rate ratios (RRs) are presented with their 95% confidence interval (CI).

Results

Of the 898 questionnaires sent out, 518 (58%) were returned. The characteristics of workers who returned their questionnaires (participants) and those who did not (non-participants) are presented in Table 1. The non-participants were younger and had less sickness absence days, but more short episodes of absence. Of the returned questionnaires, 27 were excluded because they were not complete.

The results of 491 participants were eligible for analysis. Their mean \pm SD global job satisfaction level was 5.1 ± 1.4 and did not differ significantly ($P = 0.40$) between men (5.0 ± 1.4) and women (5.1 ± 1.4). The satisfaction level of workers in the age group 20–29 years ($n = 97$) was 4.9 ± 1.5 , in workers aged 30–39 years ($n = 187$) 5.1 ± 1.3 and those aged 40–49 years ($n = 124$) 5.1 ± 1.4 . Workers of 50–59 years of age ($n = 76$) had the highest satisfaction levels (5.3 ± 1.4), but the differences between age groups were not significant ($P = 0.37$). The satisfaction level of workers with low education ($n = 204$) was 5.2 ± 1.4 , with medium education ($n = 219$) 5.1 ± 1.4 and with high education ($n = 68$) 4.8 ± 1.4 , but the differences were not significant ($P = 0.15$).

Job satisfaction correlated negatively with mental workload ($\tau = -0.16$) and positively with both job autonomy ($\tau = 0.36$) and decision authority ($\tau = 0.35$) as is shown in the correlation matrix (Table 2).

Table 1. Age, gender and sickness absence characteristics of the workers who returned their questionnaire (participants) compared to those who did not (non-participants)

Characteristics of participants and non-participants		
	Participants	Non-participants
Number	518	380
Mean (SD) age in years	38.2 (10.3)	35.8 (10.3)
Gender		
Number of men	338 (65%)	285 (75%)
Number of women	180 (35%)	95 (25%)
Men to women ratio	1.9	3.0
Total number of sick days	18926	10059
Mean (SD) number of sick days	36.5 (54.6)	26.5 (46.6)
Total number of episodes	646	429
Number of short (1–7 days) episodes	426 (66%)	324 (76%)
Number of long (>7 days) episodes	220 (34%)	105 (24%)

The number of sickness absence days was skewed to the right with a mean \pm SD of 32.5 ± 58.1 days and median 14.0 days. Normal distribution was approximated after logarithmic transformation: mean = 2.8, SD = 1.2 and median = 2.7. Table 3 presents the associations between job satisfaction and the log-transformed number of sickness absence days. Satisfied workers had significantly fewer sickness absence days than dissatisfied workers. Men had fewer sickness absence days than women. As was to be expected, age and physical workload were positively associated with the number of sickness absence days.

Table 4 shows the associations between job satisfaction and sickness absence episodes. Women had more short episodes of absence than men. Physical workload was positively related to the number of both short and long episodes of absence. Job satisfaction was negatively associated with the number of short absences (RR = 0.94; 95% CI = 0.89–1.00) and the number of long absences (RR = 0.92; 95% CI = 0.84–1.01) at levels which did not reach statistical significance.

Discussion

The mean job satisfaction level was 5.1 ± 1.4 and was unrelated to gender, age or education. Job satisfaction was negatively related to the number of sickness absence days. Satisfaction levels were also negatively associated with the number sickness absence episodes, particularly short episodes, although these associations did not reach statistical significance.

The strength of our study is that we used recorded sickness absence data instead of self-reported absence and there was no loss to follow-up during the study. The job satisfaction levels in our study population were closely in agreement with those of Dolbier *et al.* [17]. Nevertheless, one should be careful about generalizing these findings to the total workforce and across countries, as it is conceivable that job satisfaction varies among populations and cultures. The study had some other limitations.

Table 2. The correlation matrix shows non-parametric Kendall's Tau-b correlation coefficients

Correlation matrix of the independent variables					
	2	3	4	5	6
Age	0.07*	0.07*	0.11**	0.05	0.03
Physical workload	1.00	0.17**	−0.13**	−0.06	−0.06
Mental workload		1.00	−0.08*	−0.05	−0.16**
Job autonomy			1.00	0.53**	0.36**
Decision authority				1.00	0.35**
Job satisfaction					1.00

* $P < 0.05$ and ** $P < 0.01$ (two-tailed).

Table 3. Mean SD of the independent variables

The relationship between job satisfaction and sickness absence days			
	Mean (SD)	B (SE)	β
Age (in years)	38.2 (10.3)	0.02 (0.01)	0.13**
Man relative to women		-0.27 (0.12)	-0.10*
Educational level (1 = low; 3 = high)	1.7 (0.7)		
Low relative to high		0.22 (0.19)	0.09
Medium relative to high		-0.04 (0.18)	-0.02
Physical workload (1 = low; 7 = high)	4.0 (1.9)	0.10 (0.03)	0.15**
Mental workload (1 = low; 7 = high)	4.1 (1.7)	-0.05 (0.04)	-0.07
Job autonomy (1 = never; 7 = always)	5.4 (1.4)	0.03 (0.05)	0.04
Decision authority (1 = never; 7 = always)	4.8 (1.7)	-0.02 (0.04)	-0.03
Job satisfaction (1 = low; 7 = high)	5.1 (1.4)	-0.10 (0.05)	-0.10*

The results of multiple linear (ENTER) regression analysis are also shown. B (SE, standard error) indicates the distribution of unstandardized correlation coefficients and β is the standardized correlation coefficient, which is a measure for the type (positive or negative) and the relative importance of the correlation between these variables and the log-transformed number of sickness absence days; * $P < 0.05$ and ** $P < 0.01$.

Table 4. The relationship between job satisfaction and either short or long episodes of any cause sickness absence, using multivariable negative binomial analysis for short episodes of absence and multivariable Poisson regression analysis for long episodes

The relationship between job satisfaction and sickness absence episodes		
	Short absences RR (95% CI)	Long absences RR (95% CI)
Age	0.99 (0.98–1.01)	1.01 (1.00–1.02)
Man relative to women	0.79 (0.67–0.93)**	0.85 (0.68–1.07)
Education		
Low relative to high	1.01 (0.76–1.34)	1.19 (0.81–1.76)
Medium relative to high	0.91 (0.70–1.18)	0.99 (0.68–1.43)
Physical workload	0.93 (0.89–0.97)**	1.12 (1.05–1.19)**
Mental workload	1.01 (0.96–1.07)	0.95 (0.88–1.01)
Job autonomy	1.02 (0.95–1.09)	1.02 (0.93–1.13)
Decision authority	0.97 (0.92–1.02)	0.99 (0.92–1.07)
Job satisfaction	0.94 (0.89–1.00)	0.92 (0.82–1.01)

RRs together with their 95% CI are also shown. The RRs are adjusted for the influence of the other independent variables; * $P < 0.05$ and ** $P < 0.01$.

The subjects were recruited from workers who had at least one episode of sickness absence because the absence registration system did not record personal data of workers who were not absent. This could have reduced the con-

trast in satisfaction levels in the study population. Another shortcoming of this study is that information about personality was not available and could not be controlled for in the analyses.

The response rate was moderate (58%) and the more dissatisfied sick-listed workers might be less inclined to return their questionnaire, which might have underestimated the associations between job satisfaction levels and sickness absence. Global instruments are less suitable for detecting high and low areas of job satisfaction [15]. If global satisfaction is measured, single-item instruments should be preferred because differences in individual scores are ignored in the total mean score of a multi-item instrument [15,18]. We studied global satisfaction which is a subjective measure. Workers may report high levels of satisfaction for reasons to do with personal disposition or outlook, rather than the quality of work and work conditions. Moreover, an individual may have high global satisfaction levels, but still feel dissatisfied about specific work factors. Work content, workload, autonomy, communication, supervision, co-workers, financial rewards, promotion, personal growth and the meaningfulness of work are thought to represent the key elements of job satisfaction, with autonomy (in terms of being able to vary work tasks at one's own discretion) being the principal determinant of job satisfaction [16]. In our study population, job satisfaction was negatively associated with mental workload and positively with job autonomy and decision authority confirming that these factors contribute to job satisfaction.

In a previous study by Faragher *et al.* [2], job satisfaction was found to relate to health problems, with the strongest associations being for burnout [correlation coefficient (r) = 0.48], depression (r = 0.43) and anxiety (r = 0.42). The authors stated that these associations were sufficiently large to be of considerable clinical importance. We found a significant though weak association between job satisfaction levels and the number of sickness absence days. The association with the number of sickness absence episodes was weaker and fell short of statistical significance. However, the significant association between satisfaction levels and the number of sickness absence days points to the possible benefits of screening for job satisfaction in order to identify workers who are likely to have more sickness absence days. Dissatisfied workers may thereby be counselled and supported before their dissatisfaction leads to the onset of sickness absence. When specific aspects of work tasks or the working environment are identified as causing particular dissatisfaction, the worker can be assisted to change these appropriately and consequently reduce the risk of resulting sickness absence. The effectiveness of such an approach should be investigated using a randomized clinical trial design. Further research could also clarify whether job satisfaction levels can identify workers with mental health problems in an early stage.

Key points

- Job satisfaction was negatively related to the number of sickness absence days.
- Job satisfaction may also be negatively associated with the number of sickness absence episodes, particularly short episodes, but the association did not reach statistical significance in this study.
- The results suggest that assessing job satisfaction levels may identify those workers who are likely to have most sickness absence days.

Conflicts of interest

None declared.

References

1. Parent-Thirion A, Macias FE, Hurley J, Vermeylen G. *Fourth European Working Conditions Survey*. Dublin, Ireland: European Foundation for the Improvement of Living and Working Conditions; 2007.
2. Faragher EB, Cass M, Cooper CL. The relationship between job satisfaction and health: a meta-analysis. *Occup Environ Med* 2005;**62**:105–112.
3. van der Giezen AM, Bouter LM, Nijhuis FJ. Prediction of return-to-work of low back pain patients sicklisted for 3 to 4 months. *Pain* 2000;**87**:285–294.
4. Krause N, Dasinger NK, Deegan LJ, Rudolph L, Brand RJ. Psychosocial job factors and return-to-work after compensated low back injury: a disability-specific analysis. *Am J Ind Med* 2001;**40**:374–392.
5. Froom P, Melamed S, Nativ T. Low job satisfaction predicts delayed return to work after laparoscopic cholecystectomy. *J Occup Environ Med* 2001;**43**:657–662.
6. Eshøj P, Jepsen JR, Nielsen CV. Long-term sickness absence—risk indicators among occupationally active residents of a Danish county. *Occup Med (Lond)* 2001;**51**:347–353.
7. Hoogendoorn WE, Bongers PM, de Vet HCW, Ariens GA, van Mechelen W, Bouter LM. High physical work load and low job satisfaction increase the risk of sickness absence due to low back pain: results of a prospective cohort study. *Occup Environ Med* 2002;**59**:323–328.
8. Andrea H, Beurskens AJ, Metsemakers JF, van Amelsfoort LG, van den Brandt PA, van Schayk CP. Health problems and psychosocial work environment as predictors of long term sickness absence in employees who visited the occupational physician and/or general practitioner in relation to work: a prospective study. *Occup Environ Med* 2003;**60**:295–300.
9. Notenbomer A, Roelen CAM, Groothoff JW. Job satisfaction and short-term sickness absence among Dutch workers. *Occup Med (Lond)* 2006;**56**:279–281.
10. Böckermann P, Ilmakunnas P. Interaction of working conditions, job satisfaction, and sickness absences: evidence from a representative sample of employees. *Soc Sci Med* 2008;**67**:520–528.
11. Marmot M, Feeney A, Shipley M, North F, Syme SL. Sickness absence as a measure of health status and functioning: from the UK Whitehall II study. *J Epidemiol Community Health* 2005;**49**:124–130.
12. Oshagbemi T, Wanous JP, Reichers AE, Hudy MJ. Overall job satisfaction: how good are single item measures? *J Appl Psychol* 1997;**82**:247–252.
13. Ilies R, Judge TA. On the heritability of job satisfaction: the mediating role of personality. *J Appl Psychol* 2003;**88**:750–759.
14. Judge TA, Heller D, Mount MK. Five-factor model of personality and job satisfaction: a meta-analysis. *J Appl Psychol* 2002;**87**:530–541.
15. van Saane N, Sluiter JK, Verbeek JHAM, Frings-Dresen MHW. Reliability and validity of instruments measuring job satisfaction—a systematic review. *Occup Med (Lond)* 2003;**53**:191–200.
16. Roelen CAM, Koopmans PC, Groothoff JW. Which work factors determine job satisfaction? *Work* 2008;**30**:433–439.
17. Dolbier CL, Webster JA, McCalister KT, Mallon MW, Steinhardt MA. Reliability and validity of a single-item measure of job satisfaction. *Am J Health Promot* 2005;**19**:194–198.
18. Wanous JP, Reichers AE, Hurdy MJ. Overall job satisfaction: how good are single-item measures. *J Appl Psychol* 1997;**82**:247–252.